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ABSTRACT

One major component of the efforts to promote the use of technology and distance education in South Dakota and specifically of Phase III of the Connecting the Schools Project-an initiative announced in the spring of 1999 by Governor Janklow that built a statewide intranet among all 176 school districts--was a comprehensive evaluation activity. The process of evaluation included active participation in the project by evaluators, collection of quantitative and qualitative data, and submission of several comprehensive evaluation reports. The overall evaluation plan was built around the AEIOU approach (Fortune & Keith, 1992; Sweeney 1995; Sorensen, 1996). The AEIOU evaluation process provides a framework for identifying key questions related to the project's implementation. This approach has five components that permit examination of the Phase III of the Connecting the Schools Project from a number of different perspectives: accountability; effectiveness; impact; organizational context; and unanticipated consequences. Interviews, focus groups, journals, and surveys that asked for narrative information were used to identify interesting and potentially important consequences of implementing the Project. The goal of the evaluation effort was to provide leaders in the state of South Dakota with information about the implementation of the distance learning infrastructure phase of the Connecting the Schools Project. Results are discussed in this paper in terms of the five components, and suggestions that were identified as a result of the evaluation are provided. (Contains 10 references.) (AEF)

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ED 470 132

LEARNING AT A DISTANCE in South Dakota: Description and Evaluation of the Diffusion of a Distance Education

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Background: Distance Education in South Dakota

The fall of 2000 has brought broad new opportunities to K-12 education in South Dakota. Beginning on August 15, 2000 interactive videoconferencing classes began to be sent over the Digital Dakota Network (DDN), a state-wide telecommunications network connecting all 176 school districts in the state. The DDN provides schools with free Internet, videoconferencing and e-mail. Although the DDN and statewide videoconferencing is new to South Dakota, regional video conferencing within the state is not.

As early as 1994 classes were offered over the North Central Area Interconnect (NCAI), a video consortium of eight schools in the northeast part of South Dakota. An advisory committee made up of one principal from each district advises the governing board of the NCAI. The governing board who actually makes the decisions is composed of a superintendent from each district. It is estimated that the original development of the NCAI system cost $1.3 million. A portion of the funding came from a Rural Electrification Administration grant with the member districts providing the remainder of the startup costs. Member schools presently pay $11,000 a year membership fee and educators teaching over the system are given a $450 stipend a semester.

Early class offerings on the NCAI included Spanish and Lakota Indian Art. NCAI has continued to expand their course offerings to students and by the spring of 2000, NCAI was in a situation where they were contemplating adding an additional videoconferencing classroom to meet their student curricular needs.

Lloyd Trautman, a physics teacher on the NCAI, and his wife, a Spanish teacher over the network, have been teaching on the system since the first year. Lloyd was among distance education's' harshest critics when the NCAI started. Today Lloyd is one of distance education's strongest advocates in the state because of his experience and the benefits of distance education that he has seen firsthand. In a school with an enrollment of 100 students in grades K-12, distance education has met a variety of needs that would never have been possible. The NCAI schools have experienced the benefits of distance education

A second video consortium, the Sanborn Interactive Video Network (SIVN), began offering classes in January of 1996. This consortium of six K-12 schools, a private university, and a technical institute, utilized a Rural Utilities Services (RUS) grant to fund a portion of the startup costs to establish their network. Member schools pay $3,000 a year for maintenance and administration of the system. A $400 stipend is paid to individuals teaching a course over the network. The SIVN presently offers seven classes over the system and has a seen an increase in participation each year. More information on the SIVN can be found at: http://mti.tec.sd.us/teleport/sivn.htm

The Southeast Interactive Long Distance Learning (SILDL) started offering classes in the fall of 1998 to its 11 member schools in the southeast corner of the state. A portion of this million-dollar system was paid for by a RUS grant. Members pay $3,000 a year to cover administration of the system and pay a $500 stipend to educators that teach over the system.

The SILDL started with 9 classes and 100 students and within two years is offering 15 classes to 225 students. This consortium has also been in a position of needing to add a second video classroom to cover the demands of the member schools. The principals and superintendents of the member schools have regular meetings where they indicate which classes they are able to offer and which classes they need. Additional information on the SILDL can be found at their website: www.usd.edu/sildl.

A fourth video consortium, the East Central Interconnect (ECI), started classes in the fall of 1999. The ECI received a RUS grant which provided a strong start for the funding of this million-dollar system. Teachers on the ECI are paid a $600 stipend per semester of teaching. A school board member from each of the 10 member schools governs the ECI. They receive advice from two advisory groups of representative superintendents and principals. The ECI offered nine classes to 119 students its' first year and eight classes to 131 students during the 2000-2001 school year.

All four of these consortiums provide their teachers with training on equipment and strategies on teaching at a distance. Each has developed policies that govern the activities of each consortium. All have felt that their choice to try videoconferencing as a means of distance education for their students was a wise decision and investment.

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Additional initiatives by other districts have also occurred. Two consortia of K-12 schools are in the planning stages of implementing a video network. Two independent school districts have also purchased video conferencing equipment which they have used over the last two years to connect their students with resources inside and outside the state.

In 1994 a satellite network, the Rural Development Telecommunications Network (RDTN), was established across the state. It consists of 18 two-way audio/video studios located throughout the state at universities and technical institutes. In addition, 80 downlink sites located primarily at school districts were connected to the RDTN. These sites have one way video/two-way audio. Use of the RDTN network is on a fee per use basis. The RDTN has provided South Dakota citizens with the opportunity to experience the opportunities that a two-way audio/video system can provide a large geographic region like a state.

This network has been used widely by government, education, and health organizations to provide information and training. The RDTN satellite downlinks have also provided a vehicle for several rural schools in the state to receive high school Spanish and Chemistry. Many districts have taken advantage of these classes which they would otherwise not been able to offer their students.

Distance education at the higher education level in the state began in 1914 at South Dakota State University with extension activities, and in 1915 the University of South Dakota began offering correspondence courses. The six state universities have taken advantage of the two-way audio/ one-way video capabilities of the RDTN to offer courses to college level students and to offer dual credit to high school students.

More recently, Governor William Janklow allocated funds to each of the five state universities to establish a "smart classroom" or a Governor's Electronic Classroom (GEC). Each classroom contained individual computer workstations and video conferencing equipment. The GECs provided high tech classrooms for universities to provide instruction at distance.

On July 1, 2000, the Electronic University Consortium (EUC) of South Dakota officially began operation. This consortium is intended to leverage the state's technology investments and make effective use of the unique strengths of each public university to better serve the people of South Dakota by coordinating off-campus distance education across the South Dakota System of Public Higher Education. This consortium was made possible through legislative action during the 2000 session which made funding available for staff to coordinate the consortium's activities.

In the fall of 2000, the higher education institutions in the state are offering distance learning opportunities via the internet, satellite, videocassette, public television, and correspondence. With over 700 South Dakota college students enrolled in multiple institutions within the state taking distance education courses during the fall 2000 semester, the face of higher education in the state is also changing.

Since 1995 Governor William Janklow has slowly and very carefully built a robust technical infrastructure across the state of South Dakota. In 1995 he initiated the Wiring the Schools (WTS) project which put three computer drops for every four students in every classroom, pulled Cat5 and fiber optic wiring throughout the schools, and upgraded the electrical wiring to manage the greater electrical demands of numerous computers. (See accompanying article regarding WTS.) The work of WTS included all public school classrooms, private schools, public libraries, and both public and private university classrooms and dormitories.

In the spring of 1999 Governor Janklow announced a second statewide initiative, Connecting the Schools (CTS). This initiative built a statewide intranet among all 176 school districts bringing T1 access into every public school building K-12. High-end two-way audio/video systems were put into almost every public high school and freestanding middle school. (See related article on CTS.) The Connecting the Schools project built upon the efforts of Wiring the Schools project, establishing a statewide network called the Digital Dakota Network (DDN). The Internet access and e-mail services provided via the DDN are free to all public schools. Video conferencing connections made within the state are also provided free to all schools.

Even though a huge investment has been made in the infrastructure of the DDN, Governor Janklow has always recognized the necessity of developing human infrastructure as well. During the 2000 session, the South Dakota Legislature created a new office within Department of Education and Cultural Affairs called the Office of Educational Technology. According to Section 4 of House Bill 1257, the Office of Educational Technology's "exclusive role shall be assisting local school districts in using educational technology. Its purpose shall include researching, analyzing, procuring, and distributing programs and methods using educational technology in South Dakota K-12 schools and classrooms." The office consists of a program manager, four technology integration specialists, the Department webmaster, and clerical support. The technology integration specialists provide direct assistance to districts and individual teachers on the use of the videoconferencing equipment and instructional strategies. The assistance these specialists have and will provide districts will be one of the keys to the successful utilization of the DDN.

In addition to the technical assistance provided to schools, quality, long-term professional development was also provided. In the summer of 2000 a Distance Teaching and Learning (DTL) Academy was made available to South Dakota educators. This academy was modeled after the Technology for Teaching and Learning (TTL) Academies already implemented in the state (see related TTL article).

Two sessions of this three-week academy were held at a state university with about 130 teachers in attendance. Participants focused on the basics of operating the video conferencing equipment and adapting curriculum for distance delivery. (See related article on the DTL Academies.) With six of the VTEL LC5000s bridged together during the academy, participants were able to practice in a "live" situation. This academy has follow-up opportunities for participants throughout the school year utilizing the DDN's videoconferencing capabilities. Subsequent DTL Academies are being planned so that they are delivered during the summer at school district locations utilizing the powerful capabilities of the DDN. Daily virtual guest speakers who are experts in the field of distance education will be brought to all the academy locations via videoconferencing on the network.

Recognizing that others across the nation have developed expertise in distance education, Governor Janklow wanted to capitalize on those learnings. During July of 2000 the Governor convened his first "Governor Janklow's Capital City Conclave on Distance Education" for which he invited 12 national leaders in distance education to the state capitol for two days to discuss the issues and potential of distance education for a rural state like South Dakota. (See accompanying Conclave article for agenda and participant information.) United State's Senator Tom Daschle was a virtual guest of the Conclave, addressing participants via videoconference from Washington D.C.

In addition to the national guests, the Governor invited 40 state leaders to be a part of the Conclave discussion. It was important that leaders from various state constituencies understand the advantages and potential of a statewide videoconferencing network. The Governor gathered input from these ambassadors on possible next steps for the state. Follow-up with these ambassadors is planned.

Recognizing that the DDN will cause a greater demand for technically skilled people to maintain the network, the Governor has campaigned heavily to make Cisco Networking Academies available in most school districts. During the first year of this effort, 32 Cisco labs have begun to offer networking coursework to junior and senior high school students. Funding for some of these labs has been made possible through the State's Department of Labor. Additional school districts are being encouraged to apply for funding to obtain their own Cisco labs building capacity throughout the state.

Through the efforts of many, led by a very committed Governor, South Dakota is in a position to provide distance education opportunities to every community and citizen in the state. The robust Internet connections and video conferencing capabilities provided by the DDN make many distance learning options available to South Dakota learners. Quality professional development and technical assistance to schools will further encourage the appropriate and effective uses of the DDN to expand learning opportunities across the state.

Evaluation: Distance Education and South Dakota

"In order to plow straight rows, the farmer does not look down at the ground but at the end of the field."

One major component of the efforts to promote the use of technology and distance education in South Dakota and specifically of Phase III of the *Connecting the Schools Project* was a comprehensive evaluation activity. The process of evaluation included active participation in the project by evaluators, collection of quantitative and qualitative data and submission of several comprehensive evaluation reports. A baseline report was completed and published in March of 2000. This baseline report established a foundation for subsequent evaluation activities. A second report included data collected since the baseline report.

The overall evaluation plan was built around the AEIOU approach (Fortune & Keith, 1992; Sweeney 1995; Sorensen, 1996). The effectiveness of this approach has been demonstrated during its use evaluating the activities of the Iowa Distance Education Alliance, Iowa's Star Schools Project (Simonson, 1995; Sorensen & Sweeney, 1994), a multi-year state-wide distance education activity. Additionally, the model has been used to evaluate a number of other innovative projects such as the Iowa Chemistry Education Alliance (1995), the Iowa General Chemistry Network (1994), and the DaVinci Project: Interactive Multimedia for Art and Chemistry (Simonson & Schlosser, 1995).

The AEIOU evaluation process provides a framework for identifying key questions related to the project's implementation. The AEIOU model is a dynamic one that permits the professional to tailor the process of evaluation to the specific situation being studied. This approach has five components that permit examination of the Phase III of the *Connecting the Schools Project* from a number of different perspectives.

Component 1 - **Accountability** - Did the project planners do what they said they were going to do?

This is the first step in determining the effectiveness of the project and is targeted at determining if the project's objectives and activities were completed. Evaluation questions center on the completion of specific activities. Additionally, counts of numbers of people, things, and activities are collected.

Methods Used: Accountability information was collected from project administrative records. Project leaders were asked to provide documentation of the level of completion of each of the projects goals, objectives, and activities.

Component 2 - **Effectiveness** - How well done was the project?

This component of the evaluation process attempts to place some value on the project's activities. Effectiveness questions focused on participant attitudes and knowledge. Evaluations were used to collect reactions from participants of workshops, academies, and other project activities.

Methods Used: Standardized measures are used to determine program effectiveness. Teachers are asked questions related perceptions about the appropriateness of the *CTS Project*. Focus groups were conducted and participants were systematically asked to respond to questions about the project.

Component 3 - **Impact** - Did the project make a difference?

During this phase of the evaluation, questions focused on identifying the changes that resulted from the project's activities, and were tied to the stated outcomes of the project. In other words, if the project had not happened what of importance would not have occurred? A key element will be the collection of longitudinal data at the beginning, middle, and end of the project.

Impact is extremely difficult to determine because determinants of impact vary. Data were collected at the beginning of the project, during its implementation, and at the end of the first full year of activity.

Methods Used: Qualitative measures such as interviews, focus groups, and direct observations will be used to identify the project's impact.

Component 4 - **Organizational Context** - What structures, policies, or events in the organization or environment helped or hindered the project in accomplishing its goals?

The focus of this component of the evaluation was on identifying those contextual or environmental factors that contributed to, or detracted from, the project.

Methods Used: Organizational context evaluation used interviews of key personnel, focus groups made up of those impacted by the program, and document analysis that identified policies and procedures that influenced the program. Direct participation in program actives by the evaluator also permitted direct observation of events.

Component 5 - **Unanticipated Consequences** - What changes or consequences of importance happened as a result of the project that were not expected?

This component of the AEIOU approach identifies unexpected changes of either a positive or negative nature that occurred as a direct or indirect result of the project. Unanticipated consequences are a rich source of information about why some projects are successful and others are not. Central to the measurement of unanticipated outcomes is the collection of ex post facto data.

Methods Used: Interviews, focus groups, journals, and surveys that asked for narrative information were used to identify interesting and potentially important consequences of implementing the *CTS Project*. Evaluators interacted with project participants on a regular basis to learn about the little successes and failures that less sensitive procedures overlook. Active and continuous involvement by evaluators permitted them to learn about the project as it occurs

DIFFUSION OF INNOVATIONS

Distance education is a new idea in South Dakota. More accurately, distance education is an innovation in South Dakota. Distance education is defined as:

Institution-based formal education where the learning group is separated and where telecommunications technologies are used to connect learners, resources, and instructors (Simonson, et. al., 2000, p. 10)

Specifically, in South Dakota distance education uses a technology -- compressed video -- that permits two or more sites to connect to one another for the synchronous sharing of video and audio. Compressed video is a television technology that has traditionally been used in corporate training, but increasingly is being used in K-12 education. Live, two-way video based instruction is a main strength of compressed video. In 2000, compressed video is considered by most to be an innovation.

An innovation is an idea, practice or object that is perceived as new. Innovations are introduced into organizations and either are adopted or rejected (Rogers, 1995). This process is called diffusion. Diffusion of an

innovation is the process of communication through certain channels over time among the members of a social system. There are four main elements of diffusion:

Innovation

An idea, practice or object that is perceived as new by an individual or other unit of adoption.

Communication Channels

Process by which participants create and share information with on another in order to reach a mutual understanding.

Time

Dimension in the innovation-decision process by which an individual passes from first knowledge of an innovation through its adoption or rejection.

Relative earliness/lateness with which an innovation is adopted.

Rate of adoption – number of members of the system that adopt the innovation in a given time period.

Social system

A set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

With a technology innovation, such as distance education, there are two components: (1) Hardware: defined as the tool that embodies the technology as a physical object and, (2) software, consisting of the knowledge base for the tool. The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption (Rogers, 1995). The five attributes of an innovation are:

1. *Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social prestige, convenience, and satisfaction are also important factors. It does not matter so much if an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be.
2. *Compatibility* is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system, and this is a relatively slow process.
3. *Complexity* is the degree to which an innovation is perceived as difficult to understand and use. Most members of a social system readily understand some innovations; others are more complicated and will be adopted more slowly. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.
4. *Trialability* is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan will generally be adopted more quickly than innovations that are not divisible. Ryan and Gross (1943) found that every one of their Iowa farmer respondents adopted hybrid seed corn by first trying it on a partial basis. If the new seed could not have been sampled experimentally, its rate of adoption would have been much slower. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing.
5. *Observability* is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter often request innovation-evaluation information about it. Solar panel adopters often are found in neighborhoods in California, with three or four adopters located on the same block. Other consumer innovations like home computers are relatively less observable, and thus diffuse more slowly.

In South Dakota, distance education using compressed video is an innovation that is being introduced into the state. The success or failure of this innovation will largely depend on the process of diffusion that occurs. Diffusion of innovations sometimes occurs naturally, without the need for outside intervention. Often however,

diffusion is managed and facilitated by change agents who involve opinion leaders who provide the necessary impetus for an innovation to reach what is called critical mass. Critical mass is the point at which an innovation spreads and expands without the need for outside intervention.

In South Dakota, the change agents who are guiding the spread of distance education are a group of educational leaders and state department staff. This group identified opinion leaders and trained and oriented them through the use of workshops and academies. The group of opinion leaders has and will provide instruction and support to South Dakota teachers who in turn will guide children and young adults to successfully use the innovation of distance education.

In summary, the diffusion of distance education in South Dakota schools is a process involving an innovation (DDN; compressed video), using communication channels (Workshops and Distance Teaching and Learning Academies), over time, within a social system (the educational community of South Dakota). The evaluation activities described next were conducted to provide educational leaders (change agents) with information to assist them in reaching critical mass, the point at which distance education is widely accepted.

EVALUATION ACTIVITIES AND RESULTS

The goal of this evaluation effort is to provide leaders in the state of South Dakota with quantitative and qualitative evaluation information about the implementation of the distance learning infrastructure phase of the Connecting the Schools project. Evaluation focused on the analysis of the relationship between the distance education training and diffusion of the distance education innovation into the K-12 environment. Factors that were of special interest to the evaluation included information about the innovativeness of those individuals involved in distance education in South Dakota, and the innovativeness of educational organizations in the state. This information helped to explain why educators and organizations were accepting or rejecting distance education, and provided insight into how the process of diffusion of this innovation can be facilitated.

Evaluation Activities

The following activities were part of the South Dakota evaluation plan. First, a standardized questionnaire, called the Connecting the Schools Questionnaire (CSQ) was systematically developed. This questionnaire included four sections – demographic information, a measure of personal innovativeness, and measure of organizational innovativeness, and questions related to distance education.

Second, the CSQ was administered to participants in six workshops for opinion leaders that were held for educators to provide them with skills and knowledge related to distance education. Staff from the Department of Education and Cultural Affairs (DECA) conducted these workshops. In addition to completing the CSQ, participants at these workshops had the opportunity to respond to open-ended questions. These questions were included in the evaluation to give workshop participants the opportunity to express their opinions about distance education.

Third, participants at Technology Teaching and Learning (TTL) Academies and Distance Teaching and Learning (DTL) Academies were asked to complete the CSQ. For these groups the CSQ was made available in an on-line version, so they could respond via the Internet. The participants at the TTL and DTL Academies also had the opportunity to give open-ended statements. Additionally, a modified focus group activity was conducted with participants of one of the DTL academies. Attendees were asked to respond to three questions about distance education in the state.

Finally, a random selection of South Dakota teachers was sent the CSQ. Their responses provide a basis of comparison. They represent the "average" South Dakota educator. This group also provided open-ended comments about technology and distance education.

Conclusions

Based on the results collected from the CSQ and from focus group activities the following conclusions about South Dakota's *Connecting the Schools – Phase III* Project can be made.

Component 1: **Accountability** – Did the project planners do what they said they were going to do?

It is obvious from data collected, meetings attended, and reports submitted that the *Connecting the Schools Project* – Phase III is being conducted effectively. Distance Teaching and Learning (DTL) Academies were held during the summer, as were six specialized training sessions for opinion leaders. Additionally, a number of meetings, short sessions, and orientations were held, all designed to explain the potential of distance education and the utilization of the Digital Dakota Network.

Component 2 - **Effectiveness** – Will the project be done well?

The effectiveness of the project was measured by the responses from teachers, administrators, network specialists, grant administrators and DECA employees to the training offered, utilizing standardized measures. Questionnaires were given to participants in workshops, and focus groups were conducted with participants.

It is apparent from observations made, data collected, and discussions held that the initial activities of the *CTS – Phase III* project were considered to be effective by participants and leaders. It is obvious that the vast majority of those involved believed that what they were participating in was effective. There has been an interesting lack of criticism of the *CTS project*, even though there have been numerous concerns expressed how distance education will impact on the South Dakota educational community and how overworked educators will be able to effectively adopt this innovation. Apparently, most think the CTS is an effective plan to alleviate concerns about distance education.

Component 3 – **Impact** – Will the project make a difference?

By far the most difficult evaluation concept to ascertain, especially in the short term, is the impact of any project, program, or innovation. Impact can be determined when baseline data are compared to data collected in a year, three years, and five years. Data collected and reported early in a project such as this one establish a framework for determining the intermediate and long-term impact of distance education generally, and more specifically, the DDN with its compressed video classrooms. Of critical importance to determining impact is the evaluation of the diffusion process followed by the educational leaders who manage distance education in the state.

It appears that the impact of the *Connecting the Schools Project – Phase III* has been positive. There is a notable lack criticism of the project; most likely because of the carefully planned, systematic process followed by project leaders. It is important to call attention to the success of process used to diffuse distance education into the educational system of South Dakota. First, opinion leaders were identified and specialized training in workshops was developed for them. Second, a large number of teachers were invited to the DTL Academies where they participated in instruction that was comprehensive, lengthy, and conducted by opinion leaders. DTL Academy graduates became highly knowledgeable and many became committed to the potential positive impact of distance education. Finally, stakeholders outside of the educational community were targeted for information about distance education and the DDN. These efforts broadened understanding in the general community and helped diffuse the innovation.

Component 4 – **Organizational Context** – are the structures, policies, or events in place that will help the project in accomplishing its goals?

Preliminary evaluation results clearly show that the concept of organizational context is critical to the success of the *CTS – Phase III* project. Specifically, these organizational topics have been identified:

Teachers must have staff development to overcome their fear of the innovation.

Teachers need continued support after staff development.

Educational policies that guide school policy will need to be studied and changed where necessary.

Teacher (and by implication, parent and student) fears and concerns will need to be addressed in a systematic and planned manner in order for distance education and the DDN to be widely accepted.

Information collected in focus group sessions provided considerable information concerning organizational context. First, there was reported a high level of general support for distance education, specifically because of the potential for curriculum enhancement. Second, many South Dakota educators said they were fearful of the consequences of distance education. Many groups reported these fears over a number of focus group activities. The fear or apprehension felt by those who must ultimately adopt an innovation such as distance education must be dealt with. It appears that the lengthy training provided in the DTL Academies is an excellent technique that alleviates apprehension. Continued follow-up activities with educators are necessary.

Component 5 – **Unanticipated Consequences**

A number of unanticipated activities occurred – the most significant was a special meeting held in Pierre, SD in July. This meeting, Governor Janklow's Capital City Conclave on Distance Education, brought a dozen national and international experts in distance education to South Dakota to interact with state leaders. Also, there seems to be a level of leadership being provided by staff (change agents) from the Department of Education and Cultural Affairs (DECA) that was not apparent when this evaluation began. This leadership seems to transcend the *CTS Project*. While leadership is difficult to document, many comments from South Dakota educators summarized in this report refer to the positive influence of DECA staff.

It is obvious that the *CTS – Phase III* project's activities have been accountable, and that early indications are that they have been effective in meeting stated objectives. The impact of the project's initial activities will be determined over time. Baseline information has been collected and will permit a clearer determination of impact in subsequent reports and in future years.

It is clear from information collected that the organizational context in which distance education exists in South Dakota is evolving, as it should, and that additional changes will need to be considered. Finally, it seems that a number of new and potentially important activities are being considered that were not anticipated when the *CTS Project* was planned. This is to be expected and is considered by most evaluators as an indication of effectiveness.

Significant suggestions identified as a result of evaluation of the diffusion of distance education in South Dakota include the following:

- Many of the participants of the six special workshops held during the spring and summer of 2000 were selected because they were considered to be opinion leaders. The data support that many opinion leaders did attend these workshops.
- A large number of the participants of the Distance Teaching and Learning (DTL) and Technology for Teaching and Learning (TTL) Academies had relatively low levels of personal innovativeness.
- Classroom teachers are the group most emulated by workshop attendees, TTL/DTL attendees and South Dakota teachers, in general. Classroom teachers are a group that increasingly should be used as opinion leaders. This will speed the diffusion of distance education in South Dakota.
- The process of using change agents to orient opinion leaders who in turn work with teachers and other adopters is a good one that seems to be working effectively in the state.
- Trialability and observability have been recognized as critical to the adoption of distance education in South Dakota. Trialability and observability opportunities should be increased in number and location to speed the adoption of distance education.
- An increased number of TTL/DTL attendees are likely to have relatively low levels of personal innovativeness indicating a reluctance to adopt distance education. A different strategy for providing staff development to these educators should be considered. Specifically, individuals with strong reluctance to adopt an innovation can not be easily influenced by normal diffusion strategies (Rogers, 1995). Rather, most efforts should be directed at educators with higher levels of innovativeness towards distance education. This is not to suggest that those with low levels of innovativeness should be ignored. Instead, efforts should be focused on other, more innovative educators.
- According to the data collected, younger, highly educated South Dakota teachers are a group that should be used to provide leadership for the adoption of distance education in the state.
- Continued support of teachers who adopt or are considering the adoption of distance education after the DTL Academy experience should be available. Mini-grants, short workshops, visits by Department of Education and Cultural Affairs staff, and publicity for projects are examples of ways to provide continued support for educators who are using the DDN and distance education.

In summary, the strategy developed to diffuse distance education into the educational community of South Dakota appears to be an approach to be modeled by other states and regions that are interested in developing a large distance education system.

First, change agents working for the Department of Education and Cultural Affairs were used to provide training and support for educators emulated by their peers. These groups received special attention in workshops designed expressly for them. These educators were considered to be opinion leaders; individuals looked to by their peers as persons to respect. Next, a large number of educators were given in-depth staff development in lengthy Distance Teaching and Learning Academies. Finally, the trained educators returned to their local schools and communities where they were supported by staff from the state department of education in efforts to use the Digital Dakota Network for distance education. The process of diffusion of the innovation of distance education was research and theory based (Rogers, 1995), evaluated systematically (AEIOU Approach), and dynamic so changes could be quickly implemented to respond to unanticipated events. In South Dakota, Daniel Burnham's famous statement is the watchword.

"Make no little plans; they have no magic to stir the blood!"

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